1.1. Product identifier

GermanBond 4kR

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Manufacture of rubber products, Adhesives, sealants, Plating agent

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: germanBelt GmbH
Street: Carl-Vollrath-Str. 8
Place: D-07422 Bad Blankenburg
Telephone: +49 (0)36741 / 5680-0
Telefax: +49 (0)36741 / 5680-70
e-mail: sales@germanbelt.de

1.4. Emergency telephone number:
Giftnotruf England: +44 (171) 635 91 91, Giftnotruf England: +44 (171) 635 91, Giftnotruf Norwegen: +47 (22) 591 300,

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Flammable liquid: Flam. Liq. 2
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Specific target organ toxicity - single exposure: STOT SE 3
Hazardous to the aquatic environment: Aquatic Chronic 1

Hazard Statements:

Highly flammable liquid and vapour.
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.
Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling
ethyl acetate, cyclohexane

Signal word: Danger

Pictograms:

Hazard statements

H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements

P403+P235 Store in a well-ventilated place. Keep cool.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331 Do NOT induce vomiting.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.
P243 Take action to prevent static discharges.
P210 Keep away from heat. No Smoking.

Special labelling of certain mixtures

EUH066 Repeated exposure may cause skin dryness or cracking.
EUH208 Contains Kolophonium. May produce an allergic reaction. Restricted to professional users.

Additional advice on labelling

No longer be emitted from packaging size > 350 g to the general public. For package size <= 350 g Additional marking: "This product may not be processed under conditions of poor ventilation." and "This product must not be used for bonding carpets."

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixture in organic solvents

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Classification according to Regulation (EC) No. 1272/2008 [CLP]</td>
<td></td>
</tr>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>&lt; 45 %</td>
</tr>
<tr>
<td>205-500-4</td>
<td>607-022-00-5</td>
<td>01-2119475103-46</td>
</tr>
<tr>
<td>110-82-7</td>
<td>cyclohexane</td>
<td>&lt; 45 %</td>
</tr>
<tr>
<td>203-806-2</td>
<td>601-017-00-1</td>
<td>01-2119463273-41</td>
</tr>
<tr>
<td>1314-13-2</td>
<td>zinc oxide</td>
<td>&lt; 5 %</td>
</tr>
<tr>
<td>215-222-5</td>
<td>030-013-00-7</td>
<td>01-2119463881-32</td>
</tr>
<tr>
<td>8050-09-7</td>
<td>Rosin, colophony</td>
<td>0.1 - 1 %</td>
</tr>
<tr>
<td>232-475-7</td>
<td>650-015-00-7</td>
<td></td>
</tr>
</tbody>
</table>

Full text of H and EUH statements: see section 16.
SECTION 4: First aid measures

4.1. Description of first aid measures

General information
Remove affected person from the danger area and lay down. Transport affected person in lying position, in case of shortness of breath in half-sitting position. Remove contaminated, saturated clothing immediately. Call a physician immediately.

After inhalation
In case of respiratory tract irritation, consult a physician. Provide fresh air.

After contact with skin
After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician.

After contact with eyes
In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion
Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed
No data available

4.3. Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Water mist, Foam, Carbon dioxide (CO2), Water spray, Sand

Unsuitable extinguishing media
Full water jet

5.2. Special hazards arising from the substance or mixture
Carbon monoxide

5.3. Advice for firefighters
In case of fire: Wear self-contained breathing apparatus. Wear a self-contained breathing apparatus and chemical protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Vapours are heavier than air, spread along floors and form explosive mixtures with air. Personal protection equipment: see section 8 Remove all sources of ignition. Provide adequate ventilation.

6.2. Environmental precautions
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Do not allow to enter into soil/subsoil.

6.3. Methods and material for containment and cleaning up
No data available

6.4. Reference to other sections
No data available

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Keep away from sources of ignition - No smoking.

Advice on protection against fire and explosion
Vapours can form explosive mixtures with air.

Further information on handling
Splashproof grounded devices

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Store in a well-ventilated place. Keep container tightly closed. Keep/Store only in original container. Material, solvent-resistant

Advice on storage compatibility
Keep in a cool, well-ventilated place away from acids. Do not store together with: Food and feedingstuffs, Oxidising agent

Further information on storage conditions
maximum storage temperature < 20°C

7.3. Specific end use(s)
Observe technical data sheet. Observe instructions for use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>110-82-7</td>
<td>Cyclohexane</td>
<td>100</td>
<td>350</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>300</td>
<td>1050</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>
### DNEL/DMEL values

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>DNEL type</th>
<th>Exposure route</th>
<th>Effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>Worker DNEL, acute</td>
<td>inhalation</td>
<td>local</td>
<td>1468 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, long-term</td>
<td>inhalation</td>
<td>local</td>
<td>734 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, acute</td>
<td>inhalation</td>
<td>local</td>
<td>734 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, long-term</td>
<td>dermal</td>
<td></td>
<td>63 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, long-term</td>
<td>dermal</td>
<td></td>
<td>37 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, long-term</td>
<td>inhalation</td>
<td>local</td>
<td>367 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, long-term</td>
<td>oral</td>
<td></td>
<td>4,5 mg/kg bw/day</td>
</tr>
<tr>
<td>110-82-7</td>
<td>cyclohexane</td>
<td>Consumer DNEL, long-term</td>
<td>oral</td>
<td>systemic</td>
<td>59,4 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, long-term</td>
<td>dermal</td>
<td>systemic</td>
<td>2016 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, long-term</td>
<td>inhalation</td>
<td>systemic</td>
<td>700 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, long-term</td>
<td>dermal</td>
<td>systemic</td>
<td>1186 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, long-term</td>
<td>inhalation</td>
<td>local</td>
<td>700 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, acute</td>
<td>inhalation</td>
<td>systemic</td>
<td>412 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, acute</td>
<td>inhalation</td>
<td>local</td>
<td>412 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, long-term</td>
<td>inhalation</td>
<td>local</td>
<td>206 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer DNEL, long-term</td>
<td>inhalation</td>
<td>systemic</td>
<td>206 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, acute</td>
<td>inhalation</td>
<td>local</td>
<td>700 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker DNEL, acute</td>
<td>inhalation</td>
<td>systemic</td>
<td>700 mg/m³</td>
</tr>
</tbody>
</table>

### PNEC values

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>Environmental compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>Freshwater</td>
<td>0,26 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0,026 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>0,34 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0,034 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>0,22 mg/kg</td>
</tr>
<tr>
<td>110-82-7</td>
<td>cyclohexane</td>
<td>Freshwater</td>
<td>0,207 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0,207 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Micro-organisms in sewage treatment plants (STP)</td>
<td>3,24 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>2,99 mg/kg</td>
</tr>
</tbody>
</table>

### 8.2. Exposure controls

**Protective and hygiene measures**

When using do not eat, drink, smoke, sniff.
Eye/face protection

- goggles

Hand protection

- Suitable material: FKM (fluoro rubber) NBR (Nitrile rubber) Unsuitable material: PVC (polyvinyl chloride) CR (polychloroprene, chloroprene rubber)
- Breakthrough time (maximum wearing time) >=8 h, Thickness of the glove material 0,35 - 0,4 mm

Respiratory protection

- Respiratory protection necessary at: exceeding exposure limit values Filtering device (full mask or mouthpiece) with filter: A

Environmental exposure controls

- Discharge into the environment must be avoided. Do not allow uncontrolled discharge of product into the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour:</td>
<td>white black transparent</td>
</tr>
<tr>
<td>Odour:</td>
<td>fruity</td>
</tr>
</tbody>
</table>

Test method

Changes in the physical state

- Initial boiling point and boiling range: 77 - 82 °C ASTM D 1120
- Flash point: -11 °C

Flammability

- ISO 10156
- Lower explosion limits: 1 vol. %
- Upper explosion limits: 12,8 vol. %
- Vapour pressure: 104 hPa Cyclohexan (at 20 °C)
- Vapour pressure: 100 hPa Ethylacetat (at 20 °C)

Density (at 20 °C): 0,88 g/cm³

Viscosity / dynamic:

- (at 20 °C) ca. 1700 mPa·s

Solvent content: ca. 80 %

Solid content: ca. 20 %

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

- No data available

10.2. Chemical stability

- No data available

10.3. Possibility of hazardous reactions

- No data available

10.4. Conditions to avoid

- In case of warming: Danger of explosion
10.5. Incompatible materials
Oxidising agent

10.6. Hazardous decomposition products
Carbon dioxide (CO2) Carbon monoxide

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity
Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Exposure route</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>oral</td>
<td>LD50</td>
<td>5600</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>18000</td>
<td>Rabbit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalative vapour</td>
<td>LC50</td>
<td>58 mg/l</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td>110-82-7</td>
<td>cyclohexane</td>
<td>oral</td>
<td>LD50</td>
<td>&gt; 5000</td>
<td>Rat</td>
<td>OECD 401</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>&gt; 2000</td>
<td>Rabbit</td>
<td>OECD 402</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalative (4 h) vapour</td>
<td>LC50</td>
<td>&gt; 32,88</td>
<td>Rat</td>
<td>OECD 403</td>
</tr>
<tr>
<td>1314-13-2</td>
<td>zinc oxide</td>
<td>oral</td>
<td>LD50</td>
<td>&gt; 5000</td>
<td>Rat</td>
<td>OECD 401</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalative (4 h) aerosol</td>
<td>LC50</td>
<td>&gt; 5 mg/l</td>
<td>Rat</td>
<td></td>
</tr>
</tbody>
</table>

Irritation and corrosivity
Causes skin irritation.
Causes serious eye irritation.

Sensitising effects
Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.

STOT-single exposure
May cause drowsiness or dizziness. (ethyl acetate; cyclohexane)

STOT-repeated exposure
Repeated exposure may cause skin dryness or cracking.

Aspiration hazard
Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity
12.2. Persistence and degradability

There are no data available on the preparation/mixture itself.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Method</th>
<th>Value</th>
<th>d</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>OECD 301 D</td>
<td>79 %</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>110-82-7</td>
<td>cyclohexane</td>
<td>OECD 301 F</td>
<td>77 %</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

There are no data available on the preparation/mixture itself.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>BCF</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110-82-7</td>
<td>cyclohexane</td>
<td>167</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No data available.
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal
Dispose of waste according to applicable legislation.

**Waste disposal number of waste from residues/unused products**

080409 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of adhesives and sealants (including waterproofing products); waste adhesives and sealants containing organic solvents or other hazardous substances; hazardous waste

**Contaminated packaging**
Contaminated packages must be completely emptied and can be re-used following proper cleaning. Packing which cannot be properly cleaned must be disposed of. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

**Land transport (ADR/RID)**

14.1. UN number: UN 1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3
14.4. Packing group: III
Hazard label: F1

**Inland waterways transport (ADN)**

14.1. UN number: UN 1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3
14.4. Packing group: III
Hazard label: F1

**Marine transport (IMDG)**

14.1. UN number: UN 1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3
14.4. Packing group: III
Hazard label: 3

Marine pollutant: yes
Special Provisions: 223, 955
Limited quantity: 5 L
Excepted quantity: E1
EmS: F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 1133
14.2. UN proper shipping name: Adhesives
14.3. Transport hazard class(es): 3
14.4. Packing group: III
Hazard label: 3

Special Provisions: A3
Limited quantity Passenger: 10 L
Passenger LQ: Y344
Excepted quantity: E1

IATA-packing instructions - Passenger: 355
IATA-max. quantity - Passenger: 60 L
IATA-packing instructions - Cargo: 366
IATA-max. quantity - Cargo: 220 L

14.5. Environmental hazards
ENVIROMENTALLY HAZARDOUS: yes

Danger releasing substance: Cyclohexan

14.6. Special precautions for user
not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information
Restrictions on use (REACH, annex XVII):
Entry 57: cyclohexane
2010/75/EU (VOC): 80 % (704 g/l)
2004/42/EC (VOC): 80 % (704 g/l)
Information according to 2012/18/EU (SEVESO III):
Additional information: P5c
Additional information

REACH, Anhang XVII, Nr. 3, Nr. 40, Nr. 57

National regulatory information

Employment restrictions: Observe restrictions to employment for juvenils according to the ‘juvenile work protection guideline’ (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water contaminating class (D): 2 - clearly water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2, 9, 16, 8, 15

Relevant H and EUH statements (number and full text)

H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
EUH066 Repeated exposure may cause skin dryness or cracking.
EUH208 Contains Kolophonium. May produce an allergic reaction.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

Identified uses

<table>
<thead>
<tr>
<th>No</th>
<th>Short title</th>
<th>LCS</th>
<th>SU</th>
<th>PC</th>
<th>PROC</th>
<th>ERC</th>
<th>AC</th>
<th>TF</th>
<th>Specification</th>
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<td>-</td>
<td>3, 11</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

LCS: Life cycle stages
PC: Product categories
ERC: Environmental release categories
TF: Technical functions

SU: Sectors of use
PROC: Process categories
AC: Article categories

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor’s safety data sheet.)